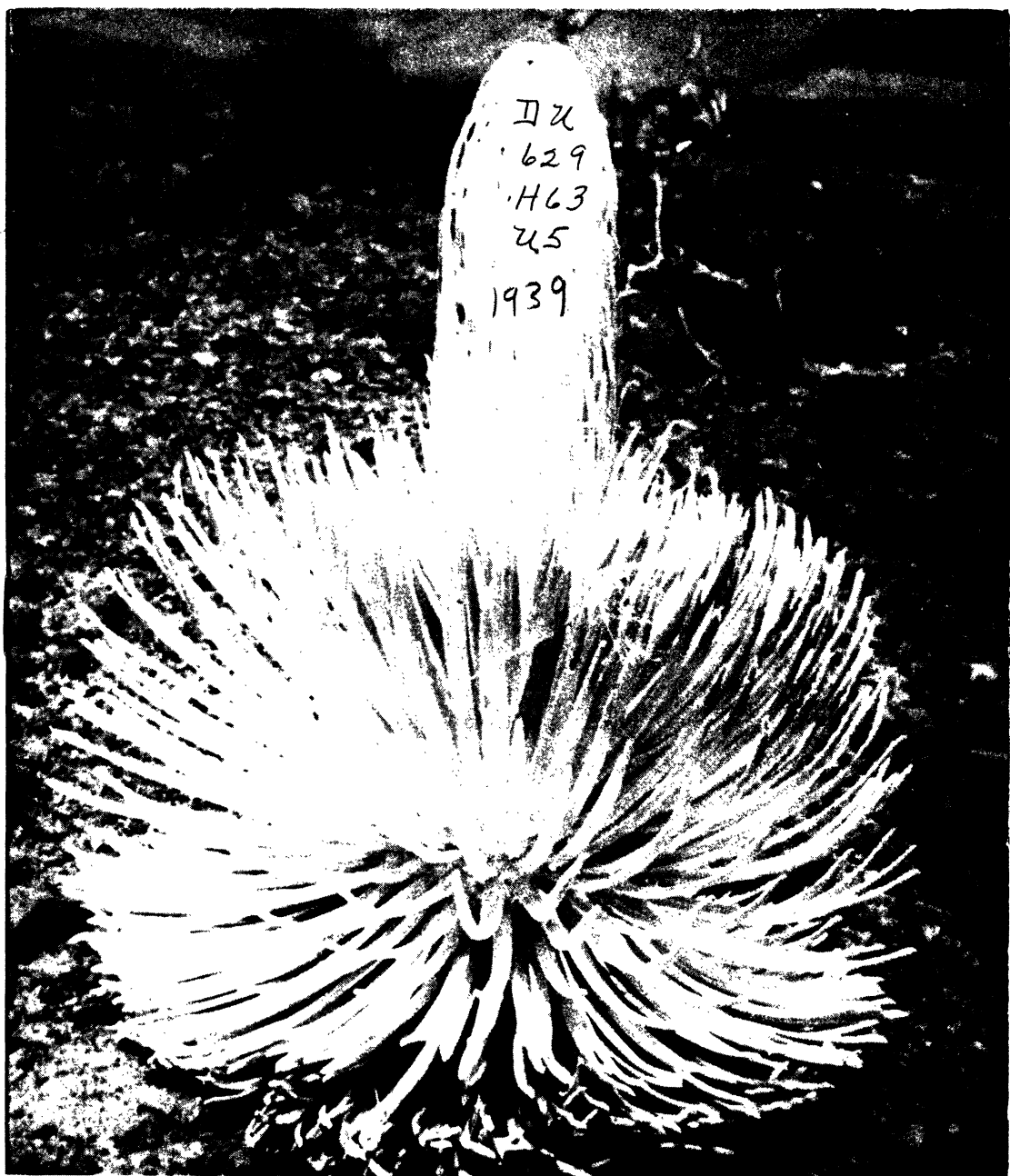




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HAWAII

NATIONAL PARK

*Hawaii*



# Hawaii

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## NATIONAL PARK

OPEN ALL YEAR

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UNITED STATES DEPARTMENT OF THE  
INTERIOR - - - Harold L. Ickes, *Secretary*

NATIONAL PARK SERVICE

Arno B. Cammerer, *Director*



FERN-LINED  
TRAIL



THE HAWAII NATIONAL PARK, in the Territory of Hawaii, was created by act of Congress August 1, 1916, and placed under the control of the National Park Service of the Department of the Interior. It is unique in that it consists of two separate tracts of land lying on different islands. The Kilauea-Mauna Loa section is located on the island of Hawaii, and the Haleakala section is on the island of Maui. The total area of the park is 248 square miles, with additional land authorized. The greater portion is included in the Kilauea-Mauna Loa section.

The park was created to conserve the most spectacular areas of volcanic interest in the United States. Its craters, active and dormant, are among the most interesting in the entire world, and even the active ones may be visited with reasonable safety.



Each section of the park is named after the volcano that is its outstanding feature. Kilauea Crater, with its fire pit Halemaumau, since 1924 has been active on an average of about once each year. Mauna Loa, which erupts about once each 4 years, has poured out more lava during the last century than any other known volcano on the globe. Haleakala, a dormant volcano, is a mountain mass 10,000 feet high with a tremendous crater rift in its summit 7 miles across and 3,000 feet deep containing many high cinder cones.

The park is also noted for its luxuriant tropical vegetation, which forms a striking contrast to the volcanic craters and barren lava flows. Gorgeous tree ferns, sandalwood, and koa vie with the flowering ohia trees in making the park forests unusually interesting to the visitor.



SNOWCAPPED MAUNA KEA FROM HILO

*Photo by Machar*

### INTERESTING FEATURES

As long as the average visitor has made a trip of 2,000 miles or more to reach the islands, it is urged that he extend his stay from the usual 1 week to 2 weeks if possible. It will be time profitably spent. The national park comprises only a small part of the islands, and the entire Territory is of great interest. For instance, a tour of the island of Hawaii, where the Kilauea-Mauna Loa section of the park is located, reveals many attractions. There are lava flows of the last and the present century with the individual characteristics all plainly indicated.

In the Kona district on the lee side of the island the rolling slopes of Mauna Loa and Hualalai are clothed with a dense native forest which gives place in the more settled portions to quaint villages and homes scattered among the acres of coffee bushes. The shore line is an irregular series of abrupt cliffs and level lava plains interrupted with beaches of pure white sand. The region about Kealahou Bay is one of great historic interest. Here are found the finest examples remaining of the ancient Hawaiian temples, rock carvings, and burial caves. Capt. James Cook, the British discoverer of the islands, landed here in 1778. By taking an outrigger canoe across beautiful Kealahou Bay, the visitor may stand beside a monument erected in his memory on the spot where he met his death. The ground on which the monument stands is British soil. The numerous bays along this coast are famous for the exciting sport they offer to the deep-sea fisherman with heavy line and reel.

On the upland ranges of North Kona and Kohala immense herds of cattle, sheep, hogs, and horses, raised for island use, may be seen. Along



ENTRANCE TO THURSTON LAVA TUBE

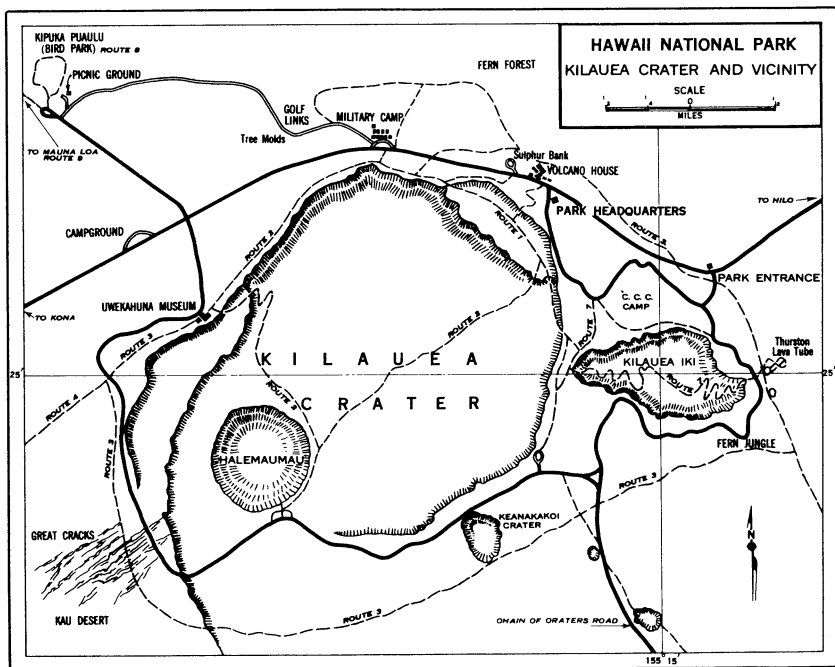
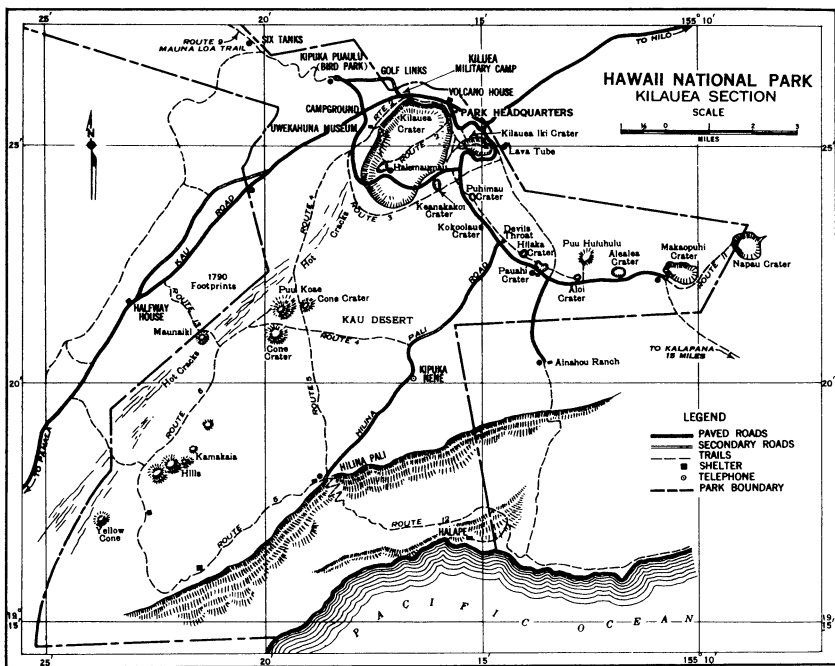
the Hamakua coast for 50 miles the lower slopes are covered with sugarcane and the rugged coast line is marked by sugar mills and villages.

#### KILAUEA-MAUNA LOA SECTION

##### KILAUEA

The most spectacular portion of the park is that including the volcano of Kilauea, usually the most active. This volcano, probably older than towering Mauna Loa, its neighbor, creates the impression of being a crater in the side of the higher mountain, although in reality it is itself a mountain with an elevation of 4,090 feet. This illusion is the result of the broad depression at its top and of its gentle slopes, caused by lava flows from many lateral vents. Within the depression is a vast pit, Halemaumau, which for years has drawn travelers from the four quarters of the earth. This pit often contains a boiling, bubbling mass of molten lava whose surface fluctuates from bottom to rim. Until 1924 molten lava was usually visible at any time in Halemaumau. Since then activity has been spasmodic. Its risings are accompanied by brilliant fountains and inflows of liquid lava, and its lowerings by tremendous avalanches which send up enormous dust clouds.

Nearly a century and a half ago Kilauea became unusually active, and its violent blast of ash destroyed a Hawaiian army. From that time—1790—no rocks or ash were ejected until 1924. During the autumn of 1923 the lake of fire drained away, but gradually returned until the pit contained a 50-acre lake of seething lava. Lava geysers appeared on its surface, sending up incandescent sprays 150 feet into the air. In 1924 this lake disappeared and crumbling masses of rock fell into the smoking pit, choking the vents



through which the volcanic gases had escaped. A few months later when steam blasts unexpectedly occurred, the vents were cleared by tremendous explosions hurling boulders and ash for thousands of feet into the air. The violent disturbance continued for 3 weeks, and at the end of that time the fire pit had been enlarged to four times its former size, the opening being 190 acres in area and 1,200 feet deep. A few weeks later, when all was quiet, a roaring jet of lava appeared at the bottom of the pit, sending up a steady spray 200 feet high, building up a small cinder cone, and forming a 10-acre lava lake on the floor of the pit. After giving a brilliant display for a couple of weeks the fountain subsided and the volcano became dormant. In July 1927 a similar display occurred, lasting for 2 weeks, and in January 1928 the fire returned for 1 night only. Gas and vapor rise continually.

During 1929 spectacular lava inflows occurred in February and July, raising the floor level 55 and 45 feet, respectively. The pit depth in December 1929 was 1,050 feet and the floor area 48 acres. On November 19, 1930, molten lava again appeared in Halemaumau. Activity continued until December 7. This activity raised the floor of the pit 70 feet; the surface area of the floor then covered 62 acres.

Following a series of earthquakes, molten lava broke into the bottom of Halemaumau on December 23, 1931. The activity lasted as a spectacular display until January 5, 1932. During the activity the pit was filled to a depth of 100 feet with lava, resulting in a new floor of 88 acres, which was 860 feet below the rim of the pit.



SMOKE CLOUD FROM KILAUEA ON FIRST DAY OF 1934 ERUPTION



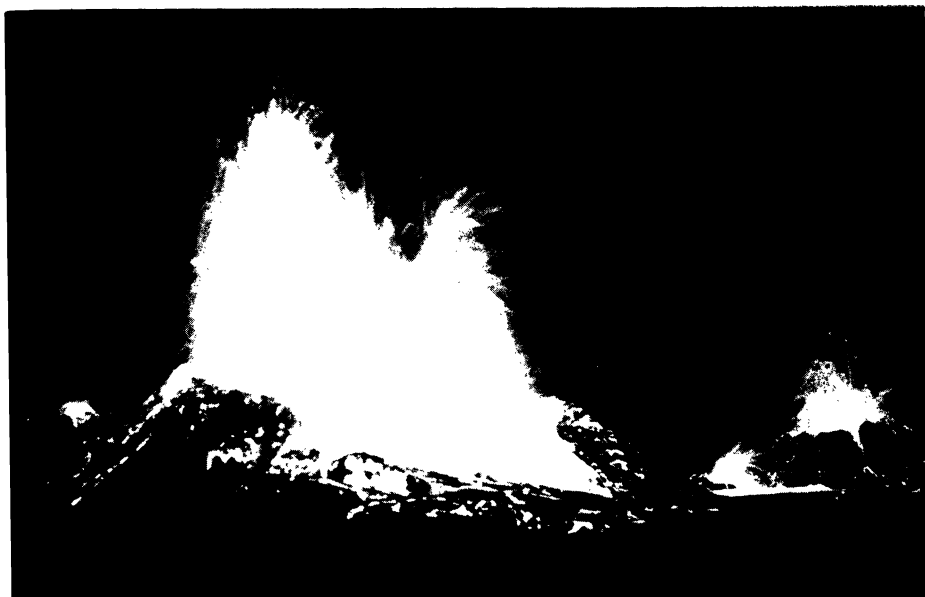
CALDERA OF HALEMAUMAU

*U. S. Geological Survey photo*

In the early morning of September 6, 1934, at about 2:45 a. m., without much preliminary warning, molten lava again returned to the fire pit in Kilauea. This eruption in its early stages was one of the most spectacular on record. Highly charged with gas released from tremendous pressure the frothy lava burst through a crack 700 feet long, halfway up the western wall of the crater, cascading in rivers of fire 425 feet to the floor below. The force of the lava cracked open the old floor left by the 1931-32 eruption across its northern and northwest end, and along the foot of the western wall dense clouds of sulphur fumes poured out, as the fiery fountains shot the liquid lava high into the air. As in the previous eruption, blocks of light pumice thrown out from the vents were whirled upward by the heat currents and gales of wind and deposited in shattered fragments over the land for more than a mile to leeward. In a few days the crater had been filled with new lava to a depth of 70 feet, and instead of the countless frothy fountains of the initial outbreak the activity centered in a lake of fire with from 5 to 10 fountains continuously throwing jets of heavy liquid lava from 50 to 200 feet above the lake. The eruption ended on October 8, leaving a new floor of about 95 acres and about 740 feet below the rim.

#### MAUNA LOA

To the west of Kilauea rises the vast dome of Mauna Loa whose summit crater, Mokuaweoweo, is included in the national park. Included also is a broad connecting belt between the two volcanoes. Mauna Loa thrusts its great bulk 13,680 feet above the surrounding Pacific. By eruptions in its summit crater and flank outbreaks it is constantly adding to its mass.

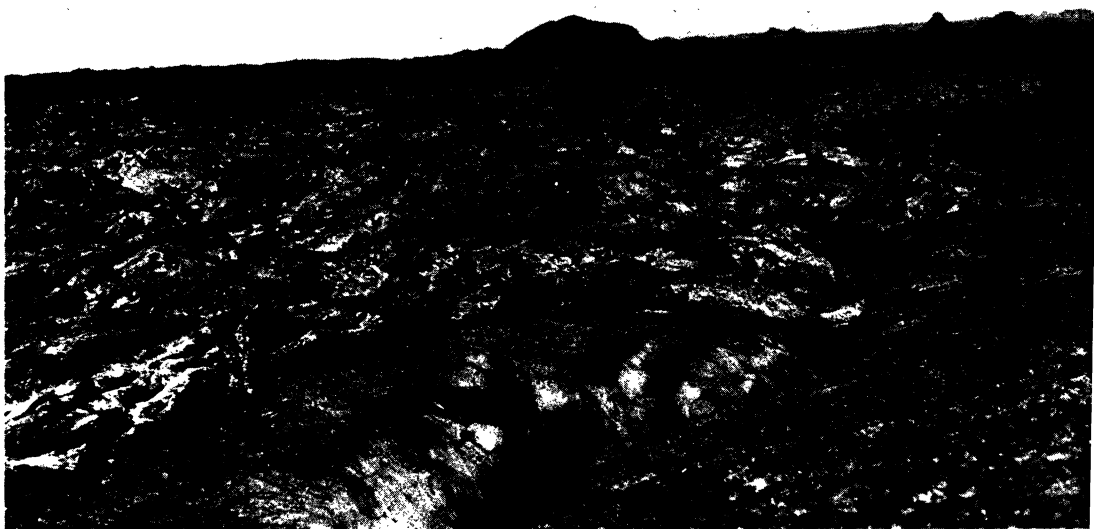


MAUNA LOA ERUPTION SOURCE FOUNTAINS—1935

In action Mauna Loa is even more spectacular than Kilauea; steam vents continually send feathery clouds into the air. Mokuaweoweo and Kilauea are of approximately equal size, but the former is slowly increasing its area by slumping and breaking down of its outer walls. Extending northeast and southwest from the summit are volcanic rifts with many deep rents formed by earthquake and eruption as well as many brilliantly colored spatter cones some 200 feet in height. These rifts have been the source of most of the recent eruptions, though the summit crater is also frequently active.

In 1868 a particularly violent outbreak showered the surrounding country for 15 miles with ash and pumice. Near the source of the eruption the ash was 15 inches deep.

After a period of dormancy from 1919, in the spring of 1926 a great flow from Mauna Loa occurred, preceded by jarring earthquakes. The flow commenced with a spectacular outbreak from a crack extending more than a mile southwest from the summit crater and lasted about 9 hours. For 3 days following the mountain was continually shaken by earthquakes until the main flow developed about 13 miles farther down the southwest flank. This main flow, lasting nearly 2 weeks, was "aa" in type, about 1,500 feet wide, and 30 feet deep. Progressing slowly, like a great snake, it wound its way seaward, destroying in its path the little fishing village of Hoopuloa. As the lava struck the sea there was a hissing sound followed by a roar as jets of pebbles and clouds of sand were thrown up by violent steam explosions. It was a never-to-be-forgotten sight for those fortunate enough to witness it.



PAHOEHOE FLOW NEAR SUMMIT OF MAUNA LOA—1935

*Photo by Maehar*

The summit crater of Mauna Loa was active for 16 days in December 1933. During the activity the new lava covered an area of more than a square mile to a depth of as much as 100 feet in places. Two great cinder cones were built up at the source fountains. The glowing smoke columns from the eruption vents were visible from the hills behind Honolulu.

Following a rather violent earthquake which occurred at 1:11 a. m., November 21, 1935, and was felt generally over the entire island of Hawaii, and on Maui and Oahu as well, Mauna Loa erupted at 7:35 p. m. in its northern summit crater and along the northeast rift from a crack rent in the mountain. This was the first eruption on the northeast side of Mauna Loa since 1899.

The flow of lava from the eruption source vents was notable in that it produced both the aa and pahoehoe types of lava. The activity continued until January 2, 1936, when forward motion of the flow ceased at a point near the headwaters of the Wailuku River, about 18 miles from the city of Hilo. With the exception of about 600 acres of grazing land, no property of value was destroyed, though for a time the flow was so threatening that the long-projected experiment of dynamiting the flow to divert the stream was carried out. On December 27 a squadron of United States Army planes dropped 6 tons of TNT near the point of emergence of the lava stream. Progress of the flow almost immediately slowed down.

The length of the main flow from the summit source was approximately 25 miles, and in places the lava heaped up 30 to 50 feet in thickness.

Spectacular and violent as these outbreaks are, they are not dangerous, for there are always plenty of time and opportunity for onlookers to get to places of safety. In fact, a volcanic eruption in Hawaii is cause for

rejoicing rather than fear, and everyone rushes to the scene of the spectacle. Mauna Loa has averaged activities once in 4 years since 1832.

#### MAUNA LOA TRIP

Mauna Loa, as any other mountain, is most respected when climbed. Cinder cones, brilliant spatter cones, glistening lava, and the sight of a white-capped tropical sea washing its base, make this a memorable trip.

From the Volcano House to Mokuaweoweo, the summit crater of Mauna Loa, and return is 60 miles. The trip can be made in 3 days either riding or walking. It is customary to drive to the foot of the trail in the morning and then to ride horseback the 8 miles over the lava to a rest house, set in a red cinder cone at the 10,000-foot elevation, called Puu Ulaula. The night is spent here and the next day, beginning at daybreak, the 18-mile walk or ride to the top and back to Puu Ulaula is made. After spending the second night in the rest house, the descent to Kilauea is made on the third day. If desired, one can now remain in the new Hui o Pele shelter at the summit of Mauna Loa.

Mauna Loa is not an easy peak to climb. To get to the summit is long and exhausting. The climber must exercise moderation in diet, abstaining from heavy and dried food, and confining himself to beef tea, sweet chocolate, prunes, hardtack, dates, and tomatoes. Eating often and little will make the trip less arduous. Those making the climb will find that a wool-lined leather jacket and hobbled boots are essential. Leather gloves, smoked glasses, facial creams, lip ointment, and a black silk handkerchief for the neck are a protection against windburn and sunburn.

All persons intending to ascend Mauna Loa must first register at park headquarters and secure permission to use the rest houses.

#### KIPUKA PUAULU

Kipuka Puaulu, a beautiful natural park, also known as Bird Park, is an interesting feature of the Kilauea area. This kipuka, or oasis, has escaped encircling lava flows, and its rich black soil supports a marvelous variety of vegetation. As many as 40 species of trees grow here. This favored spot of 100 acres is the haunt of many beautiful and rare native birds. A nature trail has been established along which the rare trees are plainly marked. A trailside shrine provides additional information.

#### VOLCANO OBSERVATORY

The Volcano Observatory, formerly under the Geological Survey of the Department of the Interior, was transferred to the National Park Service July 1, 1935. This observatory, founded in 1912, is under the



LOOKING INTO FIRE PIT OF HALEMAUMAU

direction of Dr. T. A. Jaggar, who has been in charge of its work from the beginning. The Hawaiian Volcano Research Association, which originated continuous volcano study in Hawaii, has cooperated with the Federal Government through substantial contributions for instruments, buildings, and equipment, in addition to offering occasional research fellowships. Much valuable scientific data concerning earthquakes, tidal waves, and volcanoes are obtained here. Continuous observations are made of Kilauea, and recording instruments are located on various parts of the island as well as about the volcano.

#### UWEKAHUNA MUSEUM

The National Park Service maintains a museum and lecture hall at Uwekehuna Bluff, located on the high point of the bluff and overlooking the entire Kilauea Crater and Kau Desert. Through the medium of lectures by the park naturalist and staff members, demonstration maps and charts, motion pictures, lantern slides, exhibits of volcanic rock and formations, and an actually operating seismograph, the visitor is enabled to secure a comprehensive knowledge of volcanic action and its history in this particular area. The motion pictures shown to groups visiting the museum have proved to be of exceptional value to park guests; many have remarked that they are a feature of the park tour that visitors should not miss. The picture, "Volcanoes in Action," shows by example and diagram how volcanoes are built up and explains many types of activity. Another picture, entitled "A Mountain of Fire", prepared by the naturalist staff, shows the spectacular eruptions of Kilauea in 1934 and Mauna Loa in 1935.

The museum and much of its scientific equipment were donated by the Hawaiian Volcano Research Association, and the lecture hall is a donated structure erected from proceeds of Hui O Pele memberships.

#### HUI O PELE

The Hui O Pele is an organization sponsored by the Outdoor Circle of Honolulu and is composed of those who have visited the fire pit, Halemau-mau, in the crater of Kilauea, the home of the fire goddess Pele, and paid due homage. The life membership fee is \$1, which entitles the member to an interesting certificate of membership and a lapel button or brooch. There are more than 16,000 members of this organization scattered throughout the world. The net revenues arising from the membership fees are expended for improvements in the park for the benefit of visitors. Among the structures that have been erected are the Uwekahuna lecture hall, the Summit Rest House on Mauna Loa, and shelters at Hilina Pali, Thurston Lava Tube, Halemau-mau Trail, and other points.



THE RUGGED COASTAL AREA IN THE LOWER HILINA PALI SECTION

#### ROADS

Thirty-nine miles of highways lie within the Kilauea area, the main roads being paved. One of the roads leads to the very brink of Halemau-mau, making Kilauea the most accessible and popular crater in the world. Another road winds through twisted koa stands, which frame the dome of Mauna Loa in a thousand changing shapes and then up its slopes 6,500 feet. The Hilina Pali Road, though extremely rough, goes to the edge of a 1,000-foot cliff facing seaward. Another, the Chain-of-Craters Road, 7 miles long, skirts a dozen craters lying along the great Puna rift, some collapsed, some in the making, and others which were active as late as 1922. Signs warn the driver of steam-obscured stretches of road.

#### TRAILS

One hundred and twenty-one miles of trails bring many interesting and weird sights to the hiker's eye. He may walk from the sea to the summit of Mauna Loa; from the Volcano House through rich tropical vegetation, down by way of a fault, to the floor of Kilauea, then for 2 miles over fantastic lava formations, across areas bombarded by huge boulders and fragments of lava during the 1924 eruption and to the very rim of the fire

pit, Halemaumau; along steaming bluffs—actual hot-houses which promote tropical growth at a 4,000-foot elevation—beside sandalwood stands, and through a lava tube which requires the use of a torch or a flashlight.

Water may be obtained at the small shelters, strategically placed, where tanks catch the rain run-off from the roofs. Hikers on overnight trips, however, should inform themselves as to these points and in addition always carry a canteen of water.

#### CIRCLE TRIPS BY TRAIL

The following list gives the most popular trails in the Kilauea-Mauna Loa section. They are well marked, with the interesting features identified. Descriptive sheets about the various trails can be obtained at the park office.

| Route | Description                                                                                                                                                                                                                                                                 | Length      |
|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| 1     | Along Steaming Bluff, down Sandalwood Trail and return by way of Halemaumau Trail.                                                                                                                                                                                          | 1.2 miles.  |
| 2     | Along Steaming Bluff Trail to Uwekahuna Museum, then down Uwekahuna Pali and across to fire pit. Return via Halemaumau Trail. This trip can be shortened by returning from the fire pit by car. The descent of Uwekahuna Pali is steep and rough.                           | 6.7 miles.  |
| 3     | Crater rim bridle path. Follows route 2 to Uwekahuna Museum, then around the rim of the crater past Keanakakoi to the old Keauhou Road, and back to the Volcano House.                                                                                                      | 12.5 miles. |
| 4     | Kau Desert short route. Follows route 2 to Uwekahuna Museum, then west through the Kau Desert past Cone Peak and Cone Crater over an ancient Hawaiian trail, meeting the Hilina Pali Road near Kipuka Nene. Return to Volcano House, via Hilina Pali and old Keauhou Roads. | 22.5 miles. |
| 5     | Kau Desert-Hilina Pali route. To Cone Crater via route 4, then across to Hilina Pali. Return by way of Hilina Pali Road and route 4.                                                                                                                                        | 29.9 miles. |
| 6     | Kau Desert long route. To Cone Crater, via route 4, thence past Mauna Iki lava flow of 1920, Yellow Cone, Kipuka Pepeiau and Hilina Pali. Return from Hilina Pali as on route 5.                                                                                            | 35.5 miles. |
| 7     | Kilauea Iki route. Follow the Halemaumau Trail down to Byron Ledge Junction, thence along Byron Ledge Trail to Kilauea Iki and on to the bottom. Return by way of trail to Thurston Lava Tube and the crater rim trail.                                                     | 5.1 miles.  |

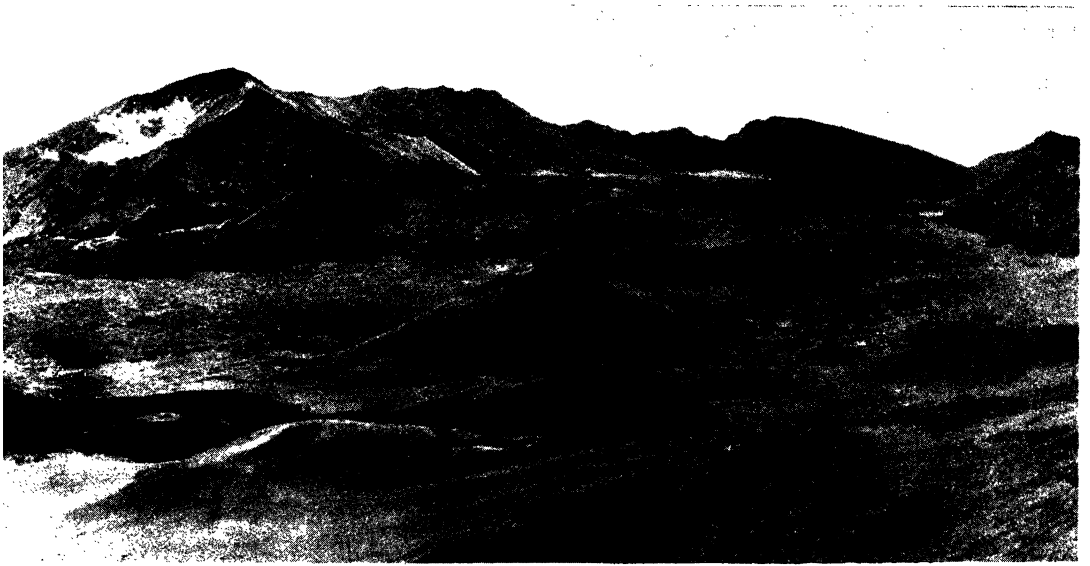
OTHER POINTS REACHED FROM THE VOLCANO HOUSE

| Route | Description                                                                                                                                                                                                                                                        | Distance one way                          |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| 8     | Kipuka Puauulu (Bird Park). Drive to the Kipuka Puauulu parking area, thence by trail through Bird Park. Marked, "Nature Study Trail."                                                                                                                             | 3.2 miles by car,<br>1.2 miles by trail.  |
| 9     | Mauna Loa route. Drive to Kipuka Puauulu, thence by trail to summit. Trip requires 2 nights out. Rest houses are located at 10,000-foot level and at rim of summit crater, elevation 13,000 feet. Permit must be obtained at park headquarters to use rest houses. | 13.5 miles by car,<br>17 miles by trail.  |
| 9a    | Giant Koa. Drive to Kipuka Puauulu, then follow the Mauna Loa trail 2 miles to Giant Koa. (The tree is dead.)                                                                                                                                                      | 3.2 miles by car,<br>2 miles by trail.    |
| 10    | Puu Huluhulu route. Drive to Puu Huluhulu parking area on the Chain-of-Craters Road from which Puu Huluhulu is reached by trail. A good view of the Chain-of-Craters area may be had from this hill on a clear day.                                                | 9 miles by car,<br>0.7 mile by trail.     |
| 11    | Napau Crater route. Drive to Makaopuhi Crater and thence by trail to Napau Crater.                                                                                                                                                                                 | 11 miles by car,<br>2.5 miles by trail.   |
| 12    | Halape route. Drive to Hilina Pali, thence by trail to Halape, situated on the seacoast, where there is a lean-to shelter. Good sea fishing and a coconut grove. Hiker should carry supply of drinking water as only brackish water is available.                  | 15.5 miles by car,<br>7.7 miles by trail. |
| 13    | Mauna Iki and the 1790 Footprints. Drive to Mauna Iki parking area on Round-the-Island Road, then hike by trail to Mauna Iki. Footprints in the 1790 volcanic ash are passed on the way.                                                                           | 7 miles by car, 2.5 miles by trail.       |

HALEAKALA SECTION

The Haleakala section of the Hawaii National Park, on the Island of Maui, contains one of the world's largest dormant volcanoes. The mountain derives its name, which in Hawaiian means "House of the Sun," from an exploit of the great Polynesian demigod Maui. Native legends tell that Maui climbed to the top of Haleakala, ensnared the rays of the sun, and forced it to travel more slowly in its course so that his mother might have sufficient time to complete her day's work. Protected inviolate in the park are many remains of ancient Hawaiian occupation of the crater and areas known to have been sacred.

Haleakala, which now rises to a height of 10,032 feet from sea level, was once a much higher mountain. A collapse of the dome many years ago formed a great crater  $7\frac{1}{2}$  miles long and 3 miles wide, with walls over



CRATER OF HALEAKALA

1,000 feet high. Within these gorgeously colored walls lies a superb volcanic spectacle. Covering the floor are giant red, black, and orange cinder cones which, though hundreds of feet high, are dwarfed by the immensity of their surroundings. The crater has a circumference of 21 miles and an area of 19 square miles.

After the collapse of the dome volcanic activity continued and many lava flows, some of recent appearance, have poured out from vents in the crater. Explosion has scattered ash, cinder, and debris over the landscape and probably was the cause of the two great gaps in the crater walls at the southeast and northwest corners of the crater. At the head of these gaps are lovely grassy meadows where from the overtowering walls flow springs of pure water. These meadows are dotted with clumps of native trees and are altogether ideal spots for camping. Tanks to gather and store the water from the mountain springs have been erected at different points in the crater, and shelter cabins have been constructed.

On the walls and within the crater grows the rare silversword plant. It is a large spherical herb with narrow leaves which gleam like polished silver. The life cycle of this plant is not fully known but only once does it flower, producing on a stalk 2 to 4 feet high a gorgeous mass of purple blossoms. After the seeds have matured the entire plant generally dies.

While the western slope of Haleakala and a large part of the interior of the crater are arid and vegetation is scarce, the eastern slopes, where the rainfall is heavy, support a rich plant life. Much of this dense forest region is still virgin and unexplored. Among its many species of plants are large-leafed ape-ape, the greensword, which resembles the silversword, and a peculiar geranium found only on Haleakala.



SUNSET ON HALEAKALA

*Copyright, Tai Sing Loo*

The beauty of the sunset and sunrise on Haleakala is unforgettable. If fortunate, the visitor at sunset may be privileged to witness the Brocken Spector, a great shadow image, which is really that of the person viewing it. The shadow is usually surrounded by a single halo or rainbow, although as many as seven have been seen.

#### TRAIL TRIPS IN HALEAKALA SECTION

There are 28 miles of trails in this section. Within the crater at three sites where water has been developed public campgrounds are located. One is under the western wall of the crater near the foot of the Halemau Trail, another in the central part of the crater under its south wall, and the third in the easternmost part beneath the towering cliffs at Paliku. A shelter cabin has been erected at each of these campsites with two cabins located at Paliku. The cabins contain sleeping accommodations for 12 persons and are equipped with running water, a wood stove for cooking, dining table, and chairs. Firewood is furnished but because of its scarcity visitors are requested to be careful of its use. There is no charge for the use of these cabins, but permission must first be obtained in writing from the district ranger in charge of the Haleakala section of the park.

Though 1- and 2-day trips are those most frequently made, for the person who enjoys camping out, the crater of Haleakala has much to offer, and a week or more can be profitably spent within its walls. As the nights in the crater are cold, frequently below freezing, warm clothing and bedding are necessities. For the hiker one or more pairs of good stout shoes are a

requisite. The average person finds some sort of skin lotion or cream desirable as a protection against sunburn.

If saddle and pack animals are desired, or the services of a guide thought necessary, arrangements may be made with E. J. Walsh, manager of the Grand Hotel, Wailuku, Maui, who is the authorized operator in the Haleakala section of the park. Horses are \$5 a day each which is also the approved rate for the services of a guide.

Three sample trips into the crater are listed below:

1. From the Haleakala observation station, by horse or on foot down the Sliding Sands Trail and across the crater to Bottomless Pit, passing silversword on Ka Moa o Pele. Return by way of Halemau Trail, passing Holua cabin and lava tube to junction with Haleakala Road. Distance 12 miles. Time by horse or good hiker 1 day.
2. From Haleakala observation station by horse or foot, down Sliding Sands Trail to Kapalaoa cabin for lunch, thence across crater passing Bubble Cave to Paliku. Spend night at Paliku returning by way of the Halemau Trail to its junction with Haleakala Road, passing Bottomless Pit and circling Puu Halalii for view of silversword on Ka Moa o Pele, and Holua cabin. Distance 20 miles. Time by horse or fairly good hiker 2 days.
3. From Haleakala observation station by horse or foot, down Sliding Sands Trail to first junction, thence across crater to Bottomless Pit, passing silverswords on Ka Moa o Pele, thence along Kaupo Trail to Paliku cabin. Spend night at Paliku and following day take trail to Kaupo village, thence east along shore to end of automobile road at Kipahulu. By car from Kipahulu to Hana for night or return late to Wailuku. Distance by trail to Kaupo village 17.5 miles and to Kipahulu 4 miles. Distance by road, Kipahulu to Wailuku, 70 miles. Time 2 to 3 days.

In all cases an early morning start should be made from Wailuku, allowing  $1\frac{1}{2}$  hours for the 41-mile drive to the Haleakala observation station. These trips may be taken in the opposite direction, but the climb out of the crater is made much less tiring by way of the Halemau Trail than by the Sliding Sands.

#### COMMON TREES AND SHRUBS

The student of botany will find much to interest him in Hawaii National Park, from the coconut groves of the coast to the stunted ohia trees near the timber line of Mauna Loa. Particular attention is directed to the tropical vegetation in the Fern Jungle through which the road to the volcano passes; many of the giant ferns are 40 feet high, with single fronds



striking example of bird evolution is found in the songbird family (Drepanidae) with 60 species all peculiar to Hawaii," whereas many of the species of sea birds are the same as found elsewhere.

Natural History Bulletin No. 1, describing the Hawaiian birds, is available to bird students who wish to make special studies.

#### ADMINISTRATION

The park is administered by the Department of the Interior through the National Park Service, with the superintendent, Edward G. Wingate, in immediate charge. The administrative center is in the Kilauea area.

All complaints, suggestions, and requests for information should be addressed to the superintendent, whose post-office address is Hawaii National Park, Territory of Hawaii.

The superintendent's representative on the island of Maui, in charge of the Haleakala section, is District Ranger J. A. Peck, P. O. Box 320, Wailuku, whose office is located near the entrance to the park on the Haleakala Road.

#### NATURALIST SERVICE

The educational service maintained by the Government is directed by the park naturalist, assisted by rangers well informed in the natural sciences. The principal features are field trips conducted throughout the year according to posted schedules, starting from the Volcano House or Kilauea Military Camp, and illustrated lectures given at Uwekahuna Museum. Trailside shrines are maintained at strategic points to explain exhibits in place.

Requests from special parties desiring the assistance of the park naturalist or rangers are given every consideration. All park guests are welcome to avail themselves of the services of these men who are there to assist visitors in learning about the natural phenomena of the region.

#### FREE PUBLIC CAMPGROUNDS

Two public automobile camps, where motorists may obtain free wood and water, have been established. Shelter buildings, picnic grounds, fireplaces, and other conveniences are provided.

#### ARMY CAMP

In the Kilauea section, 1 mile from the Volcano House, is a rest and recreation camp established for the use of the United States Army and Navy officers and their families, and for the enlisted men. The camp has a well-equipped hospital and post exchange. Lectures, hikes, and tours are conducted at the camp by personnel of the Hawaii National Park.

## HOW TO REACH THE PARK

The gateway to Hawaii and the national park is Honolulu, on the island of Oahu. Here the principal trans-Pacific steamship lines converge and the Pan-American Airways maintains a base. From Honolulu the Kilauea-Mauna Loa section of the park may be reached by either steamer or airplane to Hilo, on the island of Hawaii, and the Haleakala section by steamer to Kahului or Lahaina, on the island of Maui.

For trips to and through the Hawaiian Islands the Hawaii Tourist Bureau, a nonprofit community-advertising and information organization, with offices in Honolulu and 215 Market Street, San Francisco, will supply information.

Escorted tours are offered by the Inter-Island Steam Navigation Co., the Matson Line, the Dollar Line, the Hamburg-American Line, and by various transcontinental railroads. Full information regarding these tours may be obtained from passenger traffic managers of railroads and agents of the respective steamship lines.

### TRANSPORTATION TO KILAUEA-MAUNA LOA SECTION

#### BY BOAT

The Inter-Island Steam Navigation Co. operates modern steamers twice a week between Honolulu and Hilo. The minimum time required for the round-trip from Honolulu to the Kilauea-Mauna Loa section of the park is 1 day and 2 nights. The trip usually taken, however, is that requiring 2 days and 3 nights, of which 2 days and 1 night are spent on a tour around the island of Hawaii, with one morning spent at Kilauea. The park may also be approached through ports on the west coast of Hawaii, which are served by steamers of the Inter-Island Steam Navigation Co.

Transportation for the 30-mile trip to Hawaii National Park over excellent roads from Hilo is always available. Cars may be rented with or without drivers, or the tourist may bring his own automobile from Honolulu, the round-trip being the one-way freight rate of \$22.50 to \$27.50. At the Volcano House automobiles may be hired for special trips in and around the park.

Sample schedules and rates of the Inter-Island Navigation Co. are as follows:

|                                                                                                                                                                     |         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Leave Honolulu Tuesday at 4 p. m., spending Wednesday in Hawaii National Park; returning, arrive at Honolulu on Thursday at 6:30 a. m. All expenses included.....   | \$33.50 |
| Leave Honolulu Friday at 4 p. m., spending Saturday and Sunday on a tour of the island of Hawaii, arriving Honolulu Monday at 6:30 a. m. All expenses included..... | 51.50   |

## BY AIR

Inter-Island Airways, Ltd., operates a daily amphibian air service to Hilo. A trip to the Kilauea section may be made in one day by leaving Honolulu after breakfast and returning in the late afternoon. The flying time is 2 hours and 10 minutes. The Inter-Island maintains a taxi service which takes one to the park and return. The round trip including lunch at the Volcano House is \$54.50. The plane trip offers a series of ever-changing views of the islands, each of unforgettable beauty.

## TRANSPORTATION TO HALEAKALA SECTION

The Haleakala section may be reached by steamers from Honolulu, docking at Kahului, and by steamers from Honolulu and Hilo which stop at Lahaina. Steamers for Kahului leave Honolulu Sunday and Wednesday, and for Lahaina Tuesday and Friday each week. Steamers for Lahaina leave Hilo on Wednesday and Sunday.

One of the most popular short excursions is to leave Honolulu 9 p. m. Wednesday, arrive Kahului Thursday 5:45 a. m., motor to various points of scenic interest, thence to the summit of Haleakala to view the sunset, returning to Honolulu from Kahului, and sailing at 9 p. m. Thursday. The steamer fare from Honolulu to Kahului is \$8.00 and to Lahaina \$8.00.

The trip to Haleakala may be made separately or in conjunction with the trip to Kilauea and Mauna Loa either in going to or returning from Hilo. There are good hotel accommodations and transportation facilities on Maui. The trip to the 10,000-foot summit may be made by automobile over the new highway in about 1½ hours, where previously by motor and horseback it took 12 hours.

## ACCOMMODATIONS AND EXPENSES

The only hotel in the national park is the Volcano House, located in the Kilauea-Mauna Loa section and operated by George Lycurgus under franchise from the Department of the Interior.

The first Volcano House, built about 1856, was a grass hut, a real contrast to the present building, a modern 122-room structure, with steam heat and hot and cold running water in the rooms. Six of the hotel cottages are similarly equipped, and two have fireplaces. There are 45 rooms with shower baths available, and a club room affords a comfortable place to lounge and read. A spacious veranda affords a fine view of Mauna Loa and the great lava floor of Kilauea.

Rates for rooms with meals are \$5.50 a day upward, per person. The weekly rate for one person in a room with shower, facing the crater, is \$40;

other rooms as low as \$30. One-half rates are charged for children under 8 years of age. Special rates for 4 weeks and for two or more persons in a room are offered. Sulphur baths are 50 cents each.

This booklet is issued once a year, and **the rates mentioned herein may have changed slightly since issuance**, but the latest rates approved by the Secretary of the Interior are on file with the park superintendent and the manager of the Volcano House.

#### PHOTOGRAPHIC SUPPLIES

A studio where photographic supplies of every kind may be obtained is adjacent to the Volcano House. It is operated by K. Maehara, who also maintains a laboratory for developing, printing, enlarging, coloring, and framing of pictures or lantern slides. Photographs of the park and island scenes may be obtained at prices varying from 3 cents for a snapshot to hand-painted pictures at \$20.

#### COMMUNICATION SERVICE

A post office is maintained at the Volcano House, Hawaii, T. H., the year round. Telegrams may be received and sent from the hotel. Telephone and wireless connections can be made with all parts of the world.



SNOW ON HALEAKALA

## IMPORTANT EVENTS

### IN THE HISTORY OF HAWAII NATIONAL PARK

- 1778— Capt. James Cook, Royal British Navy, landed at Waimea on the Island of Kauai.
- 1779— February 14, death of Captain Cook.
- 1790— Great explosive eruption of Kilauea volcano.
- 1792-3-4— Hawaiian Islands visited by Capt. George Vancouver, Royal British Navy.
- 1794— Archibald Menzies, botanist, and party of the Vancouver expedition made the first successful ascent of Mauna Loa.
- 1801— Eruption of Hualalai volcano on the Island of Hawaii destroyed several Hawaiian villages.
- 1823— Eruption of Kilauea volcano in the Kau Desert.
- 1823— Kilauea volcano visited and explored for first time by Rev. William Ellis and party.
- 1825— Kilauea visited and mapped by party under Lord George Byron.
- 1832— Eruptions of Kilauea Iki and Mauna Loa.
- 1838— Halemaumau used for first time by Count Strzelecki as name for the lake of molten lava in Kilauea.
- 1840— Great eruption of Kilauea volcano to the east.
- 1840-41— Expedition under Capt. John Wilkes, U. S. Navy, explored and mapped Kilauea and Mauna Loa volcanoes.
- 1855— Mauna Loa eruption toward Hilo, continued for 15 months.
- 1856— Erection of first "Volcano House" hotel at Kilauea, a grass house.
- 1859— Mauna Loa eruption to northwest for 10 months.
- 1872-77— Almost continuous activity in summit crater of Mauna Loa.
- 1877— Submarine eruption from Mauna Loa in Kealakekua Bay.
- 1880-81— Great lava flow from Mauna Loa to the east, 9 months.
- 1898— Hawaiian Islands annexed to the United States by joint resolution of Congress.
- 1912— Hawaiian Volcano Observatory established.
- 1916— Aug. 1, Hawaii National Park established by Act of Congress.
- 1924— Explosive eruption of Kilauea volcano, enlarging the area of the fire pit to five times its former size. No molten lava was visible in the crater for 3 years thereafter.
- 1926— Eruption to the southwest from Mauna Loa destroyed the Hawaiian village of Hoopuloa.
- 1933— Airplanes used for first time to carry visitors to witness eruption of Mauna Loa. Eruption confined entirely within summit crater.
- 1934— Spectacular eruption of Kilauea volcano brought thousands of visitors daily to witness fiery display.
- 1934— President Roosevelt visited the park. First American President to visit park while in office.
- 1935— Feb. 23, dedication of the Haleakala Road.
- 1935-36— Nov. 21 to Jan. 2, eruption from northeast rift Mauna Loa sent streams of lava within 18 miles of Hilo city. Important scientific bombing experiment successfully carried out by Army Air Corps.

NOTE.—There have been many other eruptions from Kilauea and Mauna Loa volcanoes than those listed above, but the ones selected have been the most important.

## REFERENCES

- ALBRIGHT HORACE M., and TAYLOR, FRANK J. Oh, Ranger! A book about the national parks. 1929.
- ALEXANDER, W. D. Brief History of Hawaiian People. 1899.
- BRIGHAM, WILLIAM T. Memoirs of the Bernice Pauahi Bishop Museum. Vol. II, no. 4, The Volcanoes of Kilauea and Mauna Loa. 1909.
- BRYAN, WILLIAM A. Natural History of Hawaii. 1915.
- CASTLE, WILLIAM R. Hawaii Past and Present. 1926. 256 pp.
- DALY, R. A. Our Mobile Earth. Charles Scribner's Sons. 1926. 342 pp.
- DANA. Characteristics of Volcanoes (Textbook). 1891.
- DEGENER, OTTO. Ferns and Flowering Plants of Hawaii National Park. 1930. 350 pp., 89 full-page plates. 49 figures.
- DU PUY, WILLIAM A. Hawaii and Its Race Problem.
- ELLIS, WILLIAM. Tour of Hawaii.
- FORNANDER SERIES, or Collection of Hawaiian Antiquities and Folk Lore.
- GROSVENOR, GILBERT. The Hawaiian Islands. The National Geographic Magazine for February 1924.
- HAWAII TOURIST BUREAU. Near-by Hawaii and Tourfax. Issued for free distribution. Honolulu, Hawaii.
- HILLEBRAND, WILLIAM. Flora of the Hawaiian Islands. 1888.
- HITCHCOCK, C. H. Hawaii and Its Volcanoes (Honolulu Advertiser). 1909.
- KANE, J. F. Picturesque America. Frederick Gumbrecht, Brooklyn, N. Y., 1935. 256 pp. Illustrated. Hawaii on pp. 243-252.
- POPE, W. T. Manual of Wayside Plants of Hawaii. 1929.
- ROCK, JOSEPH F. Indigenous Trees of the Hawaiian Islands. 1913. 518 pp.
- ROLFE, MARY A. Our National Parks. Book Two. A supplementary reader on the national parks for fifth- and sixth-grade students. Benj. H. Sanborn & Co., Chicago. 1928. Illustrated. Hawaii National Park on pp. 73-92.
- STAR BULLETIN, Honolulu—All About Hawaii. A detailed handbook. 1936.
- STEARNS, HAROLD T., and CLARK, WILLIAM O. Geology and Water Resources of the Kau District, Hawaii. U. S. Geological Survey Water-Supply Paper 616.
- TAYLOR, ALBERT P. Under Hawaiian Skies. Advertiser Publishing Co., Honolulu, Hawaii. 1926. 607 pp.
- THE VOLCANO LETTER, a monthly leaflet, published by the Hawaiian Volcano Research Association, James Campbell Building, Honolulu. 1925-1937.
- U. S. GEOLOGICAL SURVEY. Bulletins of the Hawaiian Volcano Observatory. Published by the Hawaiian Volcano Research Association. 1913-1929.
- WESTERVELT, W. D. Hawaiian Historical Legends. 1923.
- WILSON, SCOTT B. Birds of the Sandwich Islands. 1890.
- YARD, ROBERT STERLING. The Book of the National Parks. 1926. 444 pp., 74 illustrations, 10 maps, 4 diagrams. Hawaii begins on p. 229.

## RULES AND REGULATIONS

[Briefed]

THE FOLLOWING SUMMARY of rules and regulations is intended as a guide for all park visitors. You are requested to aid the park administration by carefully observing the provisions as outlined:

**Preservation of natural features.**—The first law of a national park is preservation. Disturbance, injury, or destruction in any way of natural features, including trees, flowers, and other vegetation, rocks, and all wildlife is strictly prohibited. Flowers may be picked in other than reserved areas upon securing a written permit from the superintendent which is also necessary for picking fruit in any quantity in excess of one gallon. Visitors are cautioned that certain berries are poisonous.

**Camps.**—Camp or lunch only in designated areas. All rubbish that will burn should be disposed of in camp fires. Garbage cans are provided for noninflammable refuse. Wood and water are provided in all campgrounds.

**Fires.**—Fires are absolutely prohibited except in designated spots. Do not go out of sight of your camp, even for a few moments, without making sure that your fire is either out entirely or being watched.

**Dogs, cats, or other domestic animals.**—Such animals are prohibited on Government lands within the park except as allowed through permission of the superintendent, secured from park rangers at park headquarters.

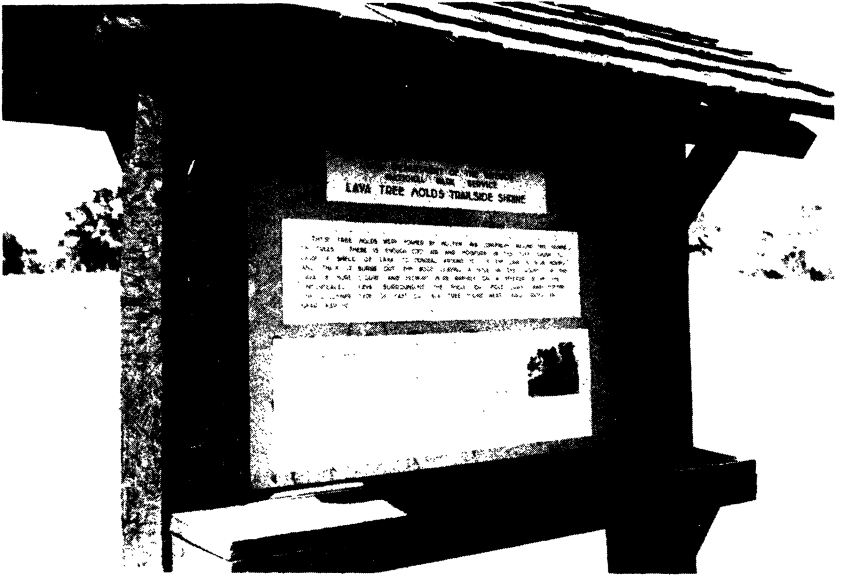
**Automobiles.**—The safe speed limit on the park roads is 35 miles per hour. In the headquarters area a speed limit of 25 miles per hour is rigidly enforced.

**Trail travel.**—Hikers and riders shall not make shortcuts but shall confine themselves to the trails at all times. Saddle animals have the right-of-way over pedestrians. The latter will take the outer side of the trail whenever possible and shall stand quietly until animals have passed.

**Hunting.**—Hunting within the park boundaries is prohibited. No firearms are allowed except as provided for through permission of the superintendent, secured from park rangers at park headquarters.

**Park rangers.**—The rangers are here to help and advise you as well as to enforce the regulations. When in doubt ask a ranger. Help them to serve you better by observing these regulations.

*Copies of the complete rules and regulations promulgated by the Secretary of the Interior for the government of the park may be obtained at the office of the superintendent and at other concentration points through the park.*



TRAILSIDE SHRINES ARE LOCATED AT STRATEGIC POINTS

## GOVERNMENT PUBLICATIONS

***Recreational Map.*** Shows Federal and State recreational areas throughout the United States and gives brief descriptions of principal ones. Address Director, the National Park Service, United States Department of the Interior, Washington, D. C. Free.

***Glimpses of Our National Parks.*** Brief descriptions of national parks. Address as above. Free.

***National Parks Portfolio.*** By Robert Sterling Yard. Cloth bound and illustrated with more than 300 pictures of places of outstanding scenic interest. Superintendent of Documents, Washington, D. C. Price, \$1.50.

***Illustrated booklets about the following national parks may be obtained free of charge by writing to the Director, National Park Service:***

Acadia, Maine.

Carlsbad Caverns, N. Mex.

Crater Lake, Oreg.

General Grant, Calif.

Glacier, Mont.

Grand Canyon, Ariz.

Grand Teton, Wyo.

Hot Springs, Ark.

Lassen Volcanic, Calif.

Mesa Verde, Colo.

Mount McKinley, Alaska.

Mount Rainier, Wash.

Rocky Mountain, Colo.

Sequoia, Calif.

Wind Cave, S. Dak.

Yellowstone, Wyo.-Mont.-Idaho.

Yosemite, Calif.

Zion and Bryce Canyon, Utah.

## NATIONAL PARKS IN BRIEF

ABRAHAM LINCOLN, KY.—Birthplace of Abraham Lincoln. Established 1916; 0.17 square mile.

ACADIA, MAINE.—Combination of mountain and seacoast scenery. Established 1919; 26.01 square miles.

BRYCE CANYON, UTAH.—Canyons filled with exquisitely colored pinnacles. Established 1928; 56.23 square miles.

CARLSBAD CAVERNS, N. MEX.—Beautifully decorated limestone caverns. Established 1930; 15.75 square miles.

CRATER LAKE, OREG.—Beautiful lake in crater of extinct volcano. Established 1902; 250.52 square miles.

FORT McHENRY, MD.—Its defense in 1814 inspired writing of Star Spangled Banner. Established 1925; 0.07 square mile.

GENERAL GRANT, CALIF.—General Grant Tree and grove of Big Trees. Established 1890; 3.98 square miles.

GLACIER, MONT.—Unsurpassed alpine scenery; 200 lakes; 60 glaciers. Established 1910; 1,537.98 square miles.

GRAND CANYON, ARIZ.—World's greatest example of erosion. Established 1919; 1,008 square miles.

GRAND TETON, WYO.—Most spectacular portion of Teton Mountains. Established 1929; 150 square miles.

GREAT SMOKY MOUNTAINS. N. C.-TENN.—Massive mountain uplift; magnificent forests. Established for protection 1930; 683.75 square miles.

HAWAII: ISLANDS OF HAWAII AND MAUI.—Interesting volcanic areas. Established 1916; 248.54 square miles.

HOT SPRINGS. ARK.—Forty-seven hot springs reserved by the Federal Government in 1832 to prevent exploitation of waters. Made national park in 1921; 1.54 square miles.

LASSEN VOLCANIC, CALIF.—Only recently active volcano in United States proper. Established 1916; 163.48 square miles.

MAMMOTH CAVE, KY.—Interesting caverns, including spectacular onyx cave formation. Established for protection 1936; 60.2 square miles.

MESA VERDE, COLO.—Most notable cliff dwellings in United States. Established 1906; 80.21 square miles.

MOUNT McKINLEY, ALASKA.—Highest mountain in North America. Established 1917; 3,030.46 square miles.

MOUNT RAINIER, WASH.—Largest accessible single-peak glacier system. Established 1899; 377.78 square miles.

OLYMPIC, WASH.—Forests of unusual density; rare Roosevelt elk. Established 1938; 1,012.5 square miles.

PLATT, OKLA.—Mineral springs. Established 1906; 1.32 square miles.

ROCKY MOUNTAIN, COLO.—Peaks from 11,000 to 14,255 feet in heart of Rockies. Established 1915; 405.33 square miles.

SEQUOIA, CALIF.—Outstanding groves of Sequoia gigantea. Established 1890; 604 square miles.

SHENANDOAH, VA.—Outstanding scenic area in Blue Ridge. Established 1935; 282.14 square miles.

WIND CAVE, S. DAK.—Beautiful cavern of peculiar formations. Established 1903; 19.75 square miles.

YELLOWSTONE: WYO.-MONT.-IDAHO.—World's greatest geyser area; an outstanding game preserve. Established 1872; 3,471.51 square miles.

YOSEMITE, CALIF.—Valley of world-famous beauty; spectacular waterfalls; magnificent High Sierra country. Established 1890; 1,176.41 square miles.

ZION, UTAH.—Zion Canyon 1,500 to 2,500 feet deep. Spectacular coloring. Established 1919; 138.04 square miles.

